

EN-US



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# LB 25

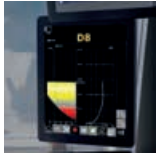
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LB 2002.07  
[www.liebherr.com](http://www.liebherr.com)

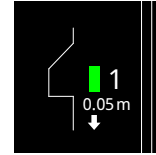
## LIEBHERR

Drilling rigs

# Concept and characteristics



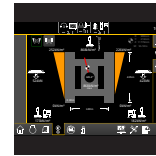
**PDE**<sup>®</sup>  
Process Data Recording



Kelly  
visualization



**MyJobsite**



Ground  
pressure  
visualization



**LIPOS**<sup>®</sup>  
Positioning System



Radio remote  
control



**LiDAT**<sup>®</sup>  
Data Transmission



Concrete  
pump



## The robust universal machine for a wide variety of applications

- Kelly drilling
- Continuous flight auger drilling
- Full displacement drilling
- Double rotary drilling
- Soil mixing
- Down-the-hole drilling

## Assistance systems

- Cruise Control for all main functions
- Control lever for all machine functions
- Automatic shake-off function for working tools
- Kelly visualization
- Ground pressure visualization
- Radio remote control
- Radio remote control for concrete pump
- Drilling assistant (single-pass process)
- Leader inclination memory
- Display of auger filling level
- Kelly winch with freewheeling and with slack rope monitoring and prevention

# Technical description



## Diesel engine

Power rating according to ISO 9249	320 kW (429 hp) at 1700 rpm
Engine type	Liebherr D 936 A7-05
Fuel tank capacity	185 gal with continuous level indicator and reserve warning
Exhaust certification	EU 2016/1628 Stage V EPA/CARB Tier 4f ECE-R.96 Power Band H non-certified emission standard



## Hydraulic system

Hydraulic oil tank capacity	158 gal
Max. working pressure	5,584 PSI
Hydraulic oil	electronic monitoring of all filters use of synthetic environmentally friendly oil possible



## Crawlers

Drive system	with fixed axial piston hydraulic motors
Crawler side frames	maintenance-free, with hydraulic chain tensioning device
Brake	hydraulically released, spring-loaded multi-disc holding brake
Drive speed	0-1.24 mph
Track force	98,916 lbf
Grousers	width 27.6 inch (option 31.5 inch)



## Swing gear

Drive system	with fixed axial piston hydraulic motors, planetary gearbox, pinion
Swing ring	roller bearing with external teeth
Brake	hydraulically released, spring-loaded multi-disc holding brake
Swing speed	0-3.75 rpm continuously variable



## Kelly winch with freewheeling

Line pull effective	44,962 lbf (1st layer)
Rope diameter	28 mm
Rope speed	0-312 ft/min



## Auxiliary winch

Line pull effective	17,985 lbf (1st layer)
Rope diameter	20 mm
Rope speed	0-271 ft/min



## Crowd system

Crowd force	67,443/67,443 lbf (push/pull)
Line pull effective	33,721 lbf (1st layer)
Rope diameter	24 mm
Travel with standard leader between mechanical limit stops	56.8 ft
Travel with Ultra-Low-Head leader and short leader lower part	15.1 ft
Rope speed	0-189 ft/min



## Noise measurement data and vibration

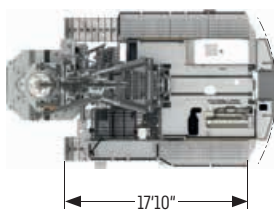
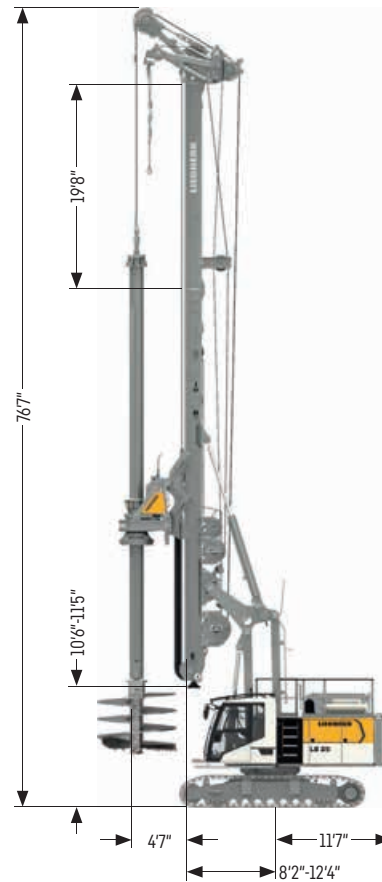
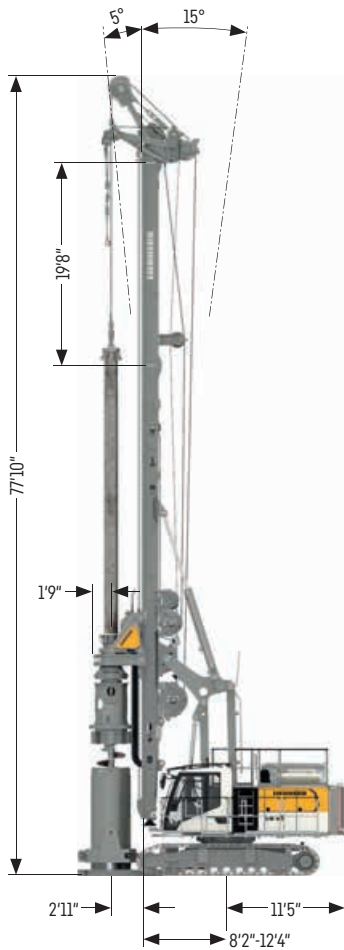
Noise emission	according to 2000/14/EC directive	
Emission sound pressure level $L_{PA}$	77.0 dB(A)	(in the cabin)
Guaranteed sound power level $L_{WA}$	108 dB(A)	(of the machine)
Vibration transmitted to the machine operator	< 2.5 m/s <sup>2</sup>	(to the hand-arm system)
	< 0.5 m/s <sup>2</sup>	(to the whole body)
Eco-Silent Mode (option)		
Guaranteed sound power level $L_{WA}$	-3 dB(A)	(of the machine)

## Remarks:

- Illustrations showing the types of application (e.g. Kelly drilling, continuous flight auger drilling etc.) are examples only.
- Weights and transport dimensions can vary with the final configuration of the machine. The figures in this brochure may include options which are not within the standard scope of supply of the machine.

# Dimensions

## Standard



- R 11'10" (17,636 lbs)
- R 12'0" (22,046 lbs)
- R 14'2" (28,660 lbs incl. rear support unit)

### Operating weights

Total weight with 27.6inch 3-web grousers	lbs 156,969
Total weight with 31.5inch 3-web grousers	lbs 157,851

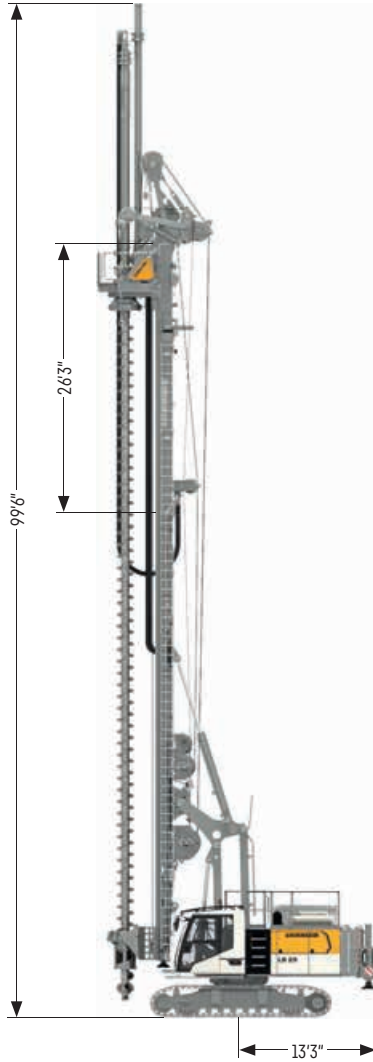
The operating weight includes the basic machine LB 25 with rotary, Kelly bar 20/3/27, 17,637 lbs counterweight and equipment for casing oscillator.

### Operating weights

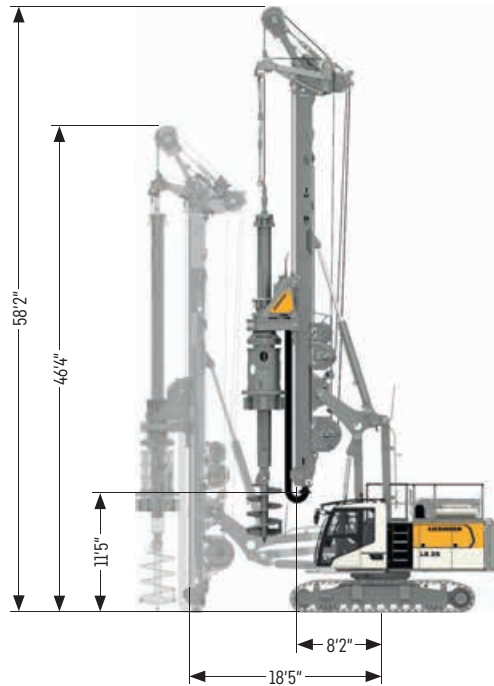
Total weight with 27.9inch 3-web grousers	lbs 169,095
Total weight with 31.5inch 3-web grousers	lbs 169,976

The operating weight includes the basic machine LB 25 with rotary, Kelly bar 20/4/48 and 22,046 lbs counterweight. Equipment for casing oscillator not included.

## Folding leader



## Low Head



### Operating weights

Total weight with 27.9inch 3-web grousers	lbs 176,590
Total weight with 31.5inch 3-web grousers	lbs 177,472

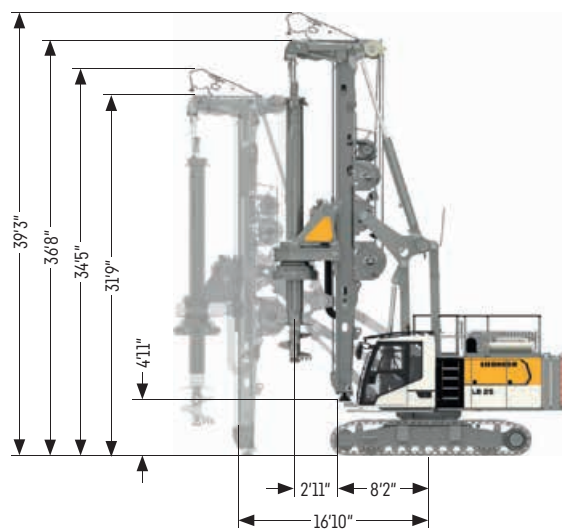
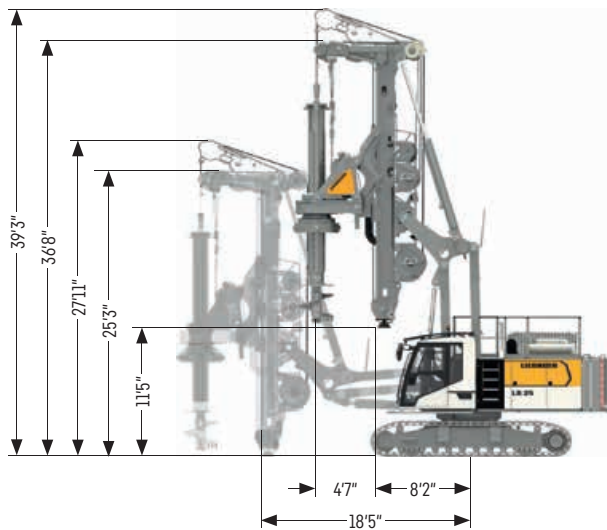
The operating weight includes the basic machine LB 25 with rotary, 19.7 ft Kelly extension, drill rod 65.6 ft, auger cleaner  $\varnothing$  2.0 ft and 28,660 lbs counterweight.  
Equipment for casing oscillator not included.

### Operating weights

Total weight with 27.9inch 3-web grousers	lbs 151,237
Total weight with 31.5inch 3-web grousers	lbs 152,119

The operating weight includes the basic machine LB 25 with rotary, Kelly bar 20/3/18 and 22,046 lbs counterweight.  
Equipment for casing oscillator not included. The line pull of the Kelly winch is reduced to 35,969 lbf when working at a radius exceeding 12.3 ft.

# Ultra Low Head



## Operating weights

Total weight with 27.9inch 3-web grousers	lbs 164,685
Total weight with 31.5inch 3-web grousers	lbs 165,567

The operating weight includes the basic machine LB 25 with rotary, Kelly bar 28/3/30, 28,660 lbs counterweight and equipment for casing oscillator. The line pull of the Kelly winch is reduced to 35,969 lbf when working at a radius exceeding 12.3 ft.

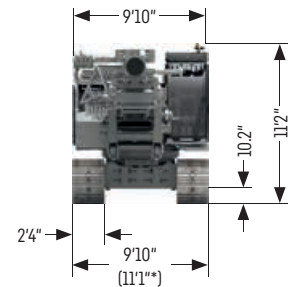
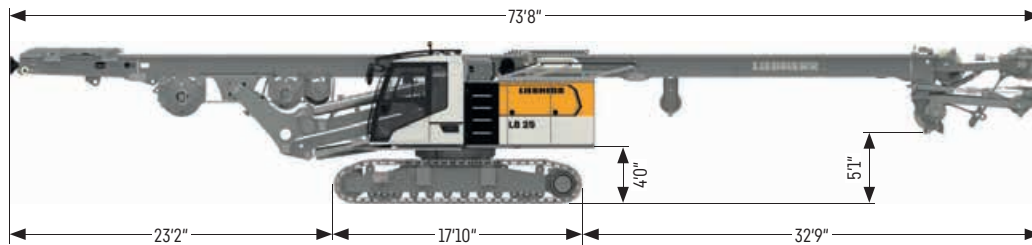
## Operating weights

Total weight with 27.9inch 3-web grousers	lbs 167,331
Total weight with 31.5inch 3-web grousers	lbs 168,213

The operating weight includes the basic machine LB 25 with rotary, Kelly bar 28/4/42 and 28,660 lbs counterweight. Equipment for casing oscillator not included. The line pull of the Kelly winch is reduced to 35,969 lbf when working at a radius exceeding 12.3 ft.



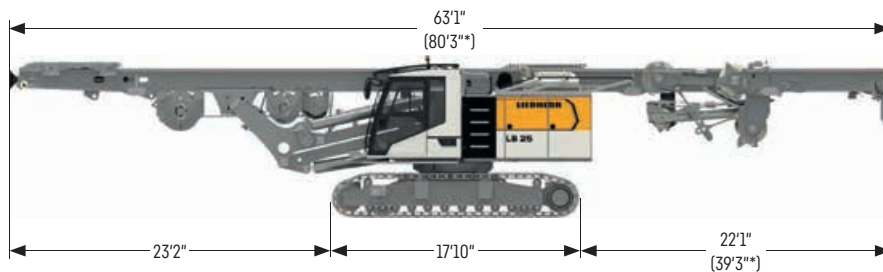
# Transport dimensions and weights



## Standard leader (19.7 ft leader upper part)

includes the basic machine (fully tanked and ready for operation) with leader, lbs 111,113  
without attachments (such as rotary, Kelly bar etc.), without counterweight  
and without adapter for casing oscillator

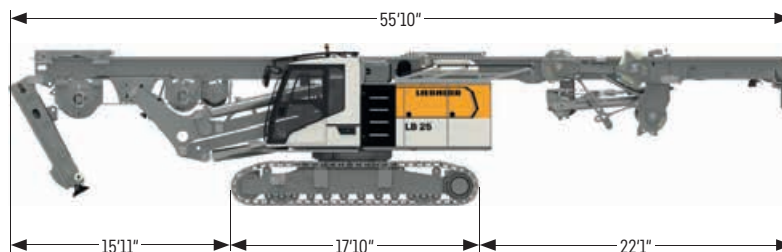
\* Transport width with 31.5 inch grousers



## Folding leader (26.2 ft leader upper part)

includes the basic machine (fully tanked and ready for operation) with leader, lbs 113,318  
without attachments (such as rotary, Kelly bar etc.), without counterweight  
and without adapter for casing oscillator

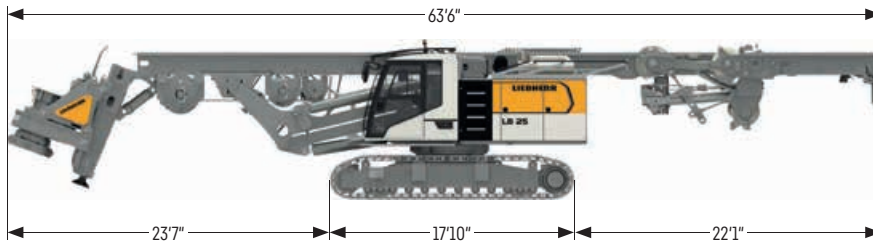
\* Transport length leader not folded



## Leader lower and upper part folded

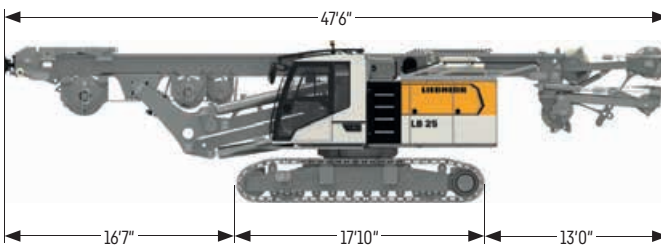
includes the basic machine (fully tanked and ready for operation) with leader, lbs 113,318  
without attachments (such as rotary, Kelly bar etc.), without counterweight  
and without adapter for casing oscillator





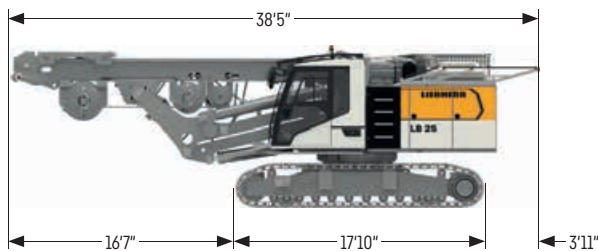
**Leader lower and upper part folded (with BAT)**

includes the basic machine (fully tanked and ready for operation) with leader, lbs 125,884  
 BAT 250, without counterweight and without adapter for casing oscillator



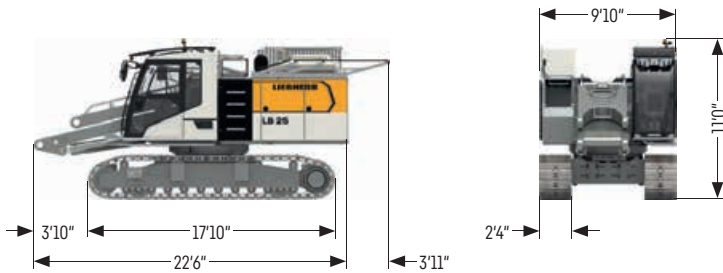
**Low Head**

includes the basic machine (fully tanked and ready for operation) with leader, lbs 106,263  
 without attachments (such as rotary, Kelly bar etc.), without counterweight  
 and without adapter for casing oscillator



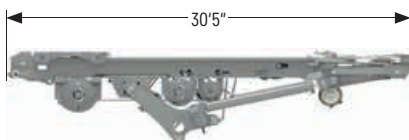
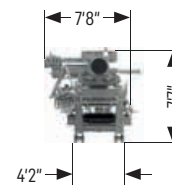
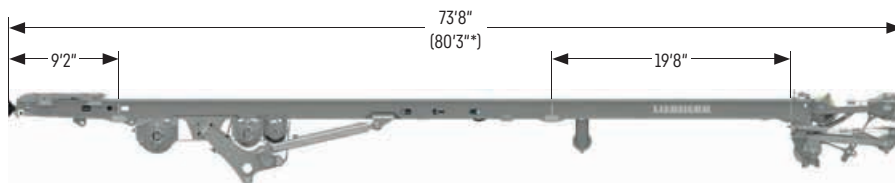
**Ultra Low Head**

includes the basic machine (ready for operation) with leader, without attach- lbs 102,515  
 ments (such as rotary, Kelly bar etc.), without counterweight and without  
 adapter for casing oscillator



**Basic machine**

with crawler side frames, without counterweight and without adapter for casing oscillator      lbs 72,973



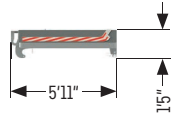
**Leader versions**

Standard leader	lbs 39,242
Folding leader	lbs 41,226
Ultra Low Head (without leader base support)	lbs 29,542
Standard leader lower part	lbs 1,543
19.7 ft leader extension	lbs 3,307
26.2 ft leader extension	lbs 5,291
Leader top	lbs 3,748
Short leader lower part	lbs 661

\* Transport length folding leader

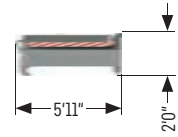
**Options**

Adapter for casing oscillator	lbs 1,764
Concrete supply line	lbs 1,323
All round platform with railings	lbs 882



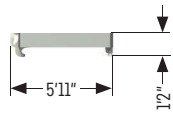
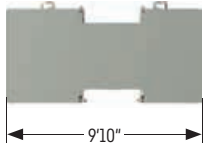
**Counterweight**

Weight lbs 11,023



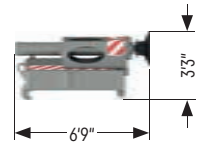
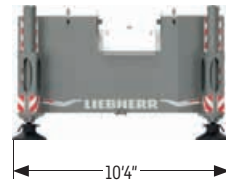
**Counterweight**

Weight lbs 17,636



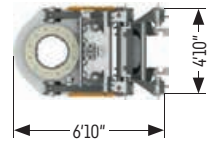
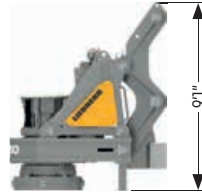
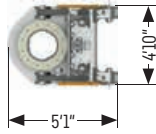
**Intermediate slab**

Weight lbs 11,023



**Counterweight with rear support unit**

Weight lbs 17,636

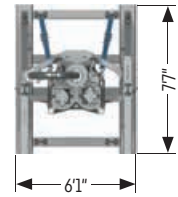
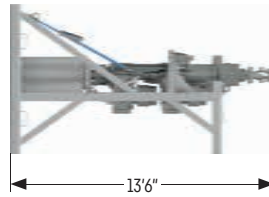
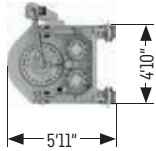
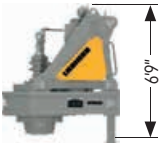


**BAT 250**

Transport weight lbs 11,684

**BAT 250 with adapter for drilling axis 4.6 ft**

Transport weight lbs 14,110

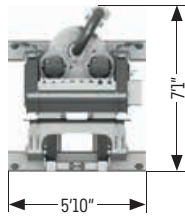
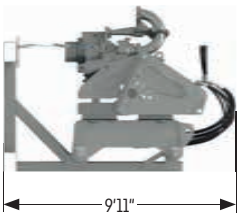


**MA 180**

Transport weight lbs 12,346

**DBA 90**

Transport weight lbs 12,566



**DHR 110**

Transport weight lbs 11,905



# Kelly drilling

## Standard



## Standard (large drilling axis)



### Performance data

Rotary drive - torque	lbf-ft	185,866	
Rotary drive - speed	rpm	58	
		Drilling axis 3.0 ft	Drilling axis 4.6 ft
Max. drilling diameter cased*	ft	3.9	7.2
Max. drilling diameter uncased	ft	4.9	8.2
Max. drilling diameter uncased with short leader lower part	ft	8.9	10.8

Above applications are sample illustrations. Other drilling diameters available on request.

\* Depending on casing driver configuration

## Drilling depths with Low Head and standard leader

### Technical data Kelly bars

Kelly bars			Drilling depths							
			Low Head				Standard			
			X [ft]		Depth [ft]		X [ft]		Depth [ft]	
Model	Length A [ft]	Weight [lbs]	3.0	4.6	3.0	4.6	3.0	4.6	3.0	4.6
20/3/18	25.6	7,496	17.7	16.4	54.5	56.1	37.4	36.1	54.5	56.1
20/3/21	29.4	8,818	13.8	12.8	64.3	65.9	33.5	32.5	64.3	65.9
20/3/24	32.6	9,700	10.5 <sup>1</sup>	9.5	74.1 <sup>1</sup>	75.8	30.2	29.2	74.1	75.8
20/3/27	35.4	10,141	7.2 <sup>1</sup>	6.2 <sup>1</sup>	84.0 <sup>1</sup>	85.6 <sup>1</sup>	26.9	25.9	84.0	85.6
20/3/30	38.7	10,803	4.6 <sup>1/2</sup>	3.3 <sup>1</sup>	93.8 <sup>1/2</sup>	95.5 <sup>1</sup>	24.3	23.0	93.8	95.5
20/3/33	42.0	11,464	1.3 <sup>1/2</sup>	-	103.7 <sup>1/2</sup>	-	21.0	19.7	103.7	105.3
20/4/36	37.0	13,669	6.21	4.9 <sup>1</sup>	113.5 <sup>1</sup>	115.2 <sup>1</sup>	25.9	24.6	113.5	115.2
20/4/42	42.2	15,212	1.0 <sup>1/2</sup>	-	133.5 <sup>1/2</sup>	-	20.7	19.7	133.5	135.2
20/4/48	46.6	18,078	-	-	-	-	16.1	14.8	152.9	154.5
20/4/54	52.0	18,960	-	-	-	-	10.81	9.8	172.9 <sup>1</sup>	174.5

<sup>1</sup> When using a short leader lower part an assist crane is required for installation.

<sup>2</sup> Installation only possible using auxiliary equipment

Drilling axis 3.0 ft

Drilling axis 4.6 ft

Other Kelly bars available on request

When using a casing oscillator (standard 118/120 KL), value X must be reduced by 3.9 ft.

Other casing oscillators available on request

When using a Kelly bar guide, value X has to be reduced by 3.8 ft for a drilling axis of 3.0 ft, and by 5.1 ft for a drilling axis of 4.6 ft.

When using a short leader lower part the drilling depth is reduced by 6.6 ft for a drilling axis of 3.0 ft, and by 8.2 ft for a drilling axis of 4.6 ft.

Length of drilling tool 6.2 ft

## Drilling depths with Ultra Low Head

### Technical data Kelly bars

Kelly bars			Drilling depths with short leader lower part							
			Leader top horizontal				Leader top raised			
			X [ft]		Depth [ft]		X [ft]		Depth [ft]	
Model	Length A [ft]	Weight [lbs]	3.0	4.6	3.0	4.6	3.0	4.6	3.0	4.6
20/3/15	22.9	7,055	7.5 <sup>2</sup>	7.5 <sup>2</sup>	34.1 <sup>2</sup>	33.8 <sup>2</sup>	10.5 <sup>2</sup>	10.5 <sup>2</sup>	34.1 <sup>2</sup>	33.8 <sup>2</sup>
20/3/18	25.6	7,496	4.6 <sup>2</sup>	4.6 <sup>2</sup>	44.0 <sup>2</sup>	43.6 <sup>2</sup>	7.9 <sup>2</sup>	7.9 <sup>2</sup>	44.0 <sup>2</sup>	43.6 <sup>2</sup>
20/3/21	29.4	8,818	-	-	-	-	3.9 <sup>2</sup>	3.9 <sup>2</sup>	53.8 <sup>2</sup>	53.5 <sup>2</sup>
			Drilling depths with standard leader lower part							
20/3/15	22.9	7,055	7.5 <sup>1</sup>	7.5	40.7 <sup>1</sup>	42.3	10.5	10.5	40.7	42.3
20/3/18	25.6	7,496	4.6 <sup>2</sup>	4.6 <sup>1</sup>	50.5 <sup>2</sup>	52.2 <sup>1</sup>	7.9 <sup>2</sup>	7.9	50.5 <sup>2</sup>	52.2
20/3/21	29.4	8,818	-	-	-	-	3.9 <sup>2</sup>	3.9 <sup>2</sup>	60.4 <sup>2</sup>	62.0 <sup>2</sup>

<sup>1</sup> Installation of Kelly bar with raised leader top

<sup>2</sup> Installation only possible using auxiliary equipment

Drilling axis 3.0 ft

Drilling axis 4.6 ft

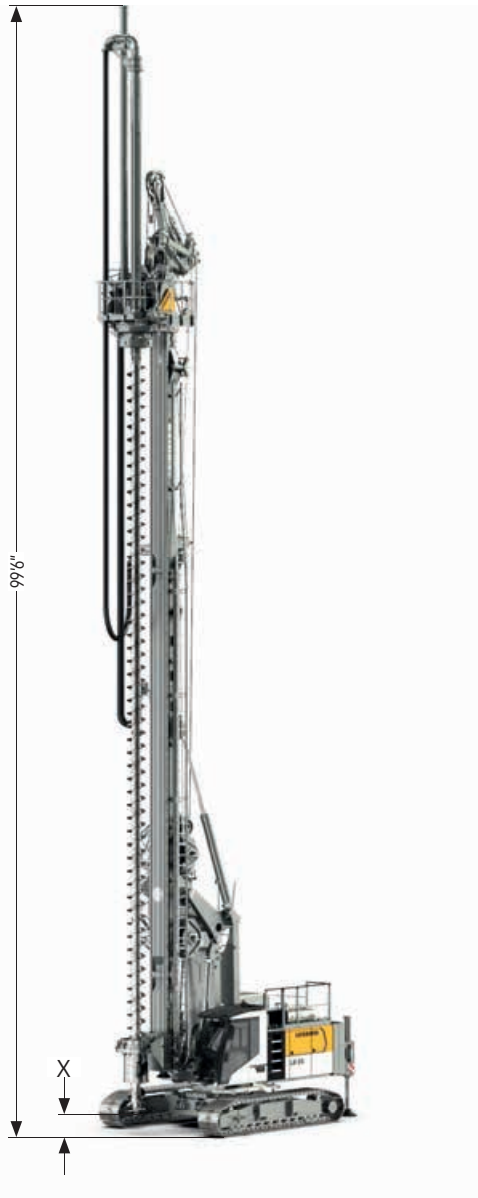
Other Kelly bars available on request

Values indicated for minimum radius

Length of drilling tool 2.3 ft

# Continuous flight auger drilling

## Folding leader



### Performance data

Rotary drive - torque	lbf-ft	169,639		
Rotary drive - speed	rpm	58		
Max. drilling diameter*	ft	3.3		
		Low Head	Standard	Folding leader
Drilling depth without Kelly extension	ft	33.1	52.8	59.4
Drilling depth with 19.7 ft Kelly extension	ft	52.8	72.5	79.1
Max. pull force	lbf	157,366	157,366	157,366

Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.

Above drilling depths are valid for the use of standard tools and for the X value of 1.6 ft (see above illustration).

\* Other drilling diameters available on request



# Full displacement drilling

## Folding leader



### Performance data

Rotary drive - torque	lbf-ft	169,639		
Rotary drive - speed	rpm	58		
Max. drilling diameter*	ft	1.6		
		Low Head	Standard	Folding leader
Drilling depth without Kelly extension	ft	34.8	54.5	61.0
Drilling depth with 19.7 ft Kelly extension	ft	54.5	74.1	80.7
Max. pull force	lbf	157,366	157,366	157,366

Above drilling depths are valid for the use of standard tools and for an X value of 2.2 ft (see above illustration).

\* Other drilling diameters available on request

# Double rotary drilling

## DBA 90



### Performance data

Rotary drive I - torque	lbf-ft	0-66,381		
Rotary drive I - speed	rpm	0-32		
Rotary drive II - torque	lbf-ft	0-50,154		
Rotary drive II - speed	rpm	0-44		
Max. drilling diameter*	ft	2.0		
		Low Head	Standard	Folding leader
Drilling depth	ft	34.1	53.8	60.4
Max. pull force	lbf	67,443	67,443	67,443

Above drilling depths are valid for the use of standard tools and for an X value of 2.9 ft (see above illustration). Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

\* Other drilling diameters available on request

# Soil mixing

## MA 180 / BAT 250



### Performance data MA 180

Rotary drive - torque	lbf-ft	0-121,698		
Rotary drive - speed	rpm	0-80		
Max. mixing diameter*	ft	4.9		
		Low Head	Standard	Folding leader
Mixing depth	ft	36.1	55.8	62.3
Mixing depth with 19.7 ft Kelly extension	ft	55.8	75.5	82.0
Max. pull force	lbf	157,366	157,366	157,366

### Performance data BAT 250

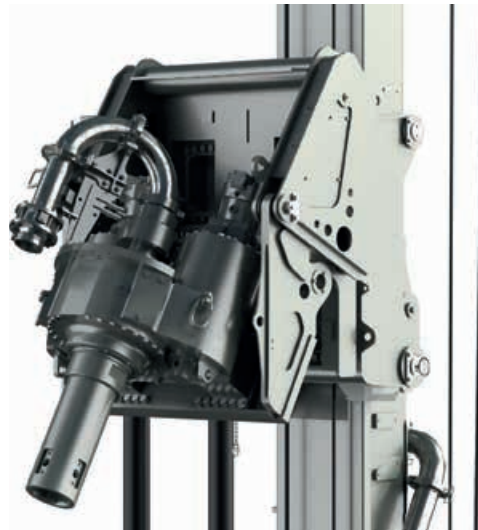
Rotary drive - torque	lbf-ft	169,639		
Rotary drive - speed	rpm	58		
Max. mixing diameter*	ft	4.9		
		Low Head	Standard	Folding leader
Mixing depth	ft	34.8	54.5	61.0
Mixing depth with 19.7 ft Kelly extension	ft	54.5	74.1	80.7
Max. pull force	lbf	157,366	157,366	157,366

Above mixing depths are valid for the use of standard tools and for an X value of 1.0 ft for MA 180, and 2.2 ft for BAT 250 (see above illustration).

\* Other mixing diameters available on request

# Down-the-hole drilling

## DHR 110



### Performance data DHR 110

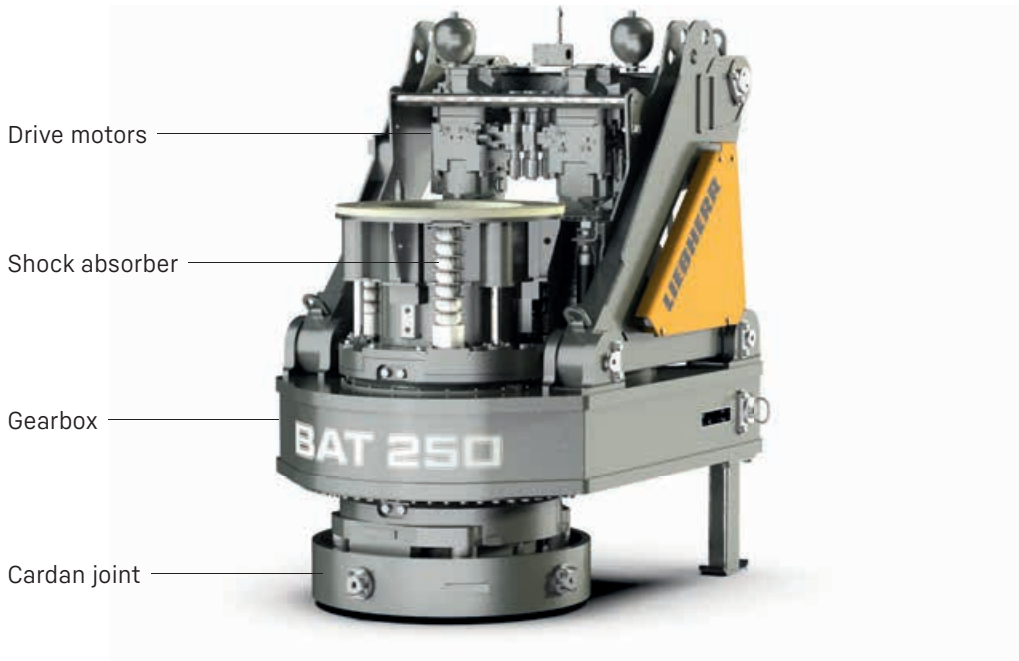
Rotary drive - torque	lbf-ft	78,182		
Rotary drive - speed	rpm	41		
		Low Head	Standard	Folding leader
Drilling depth	ft	35.1	54.8	61.4
Folding function	°	0-90	0-90	0-90
Max. pull force	lbf	134,885*/78,683**	134,885*/78,683**	134,885*/78,683**

Above drilling depths are valid for the use of standard tools and for an X value of 1.6 ft (see above illustration).

\* Max. pull force recovery mode

\*\* Max. pull force drilling operation

# BAT 250



## Kelly shock absorber:

- Newly developed Kelly shock absorber for highest demands
- Possibility of adjusting the strength of the Kelly shock absorber for different Kelly bar weights

## Highest availability through easy set-up:

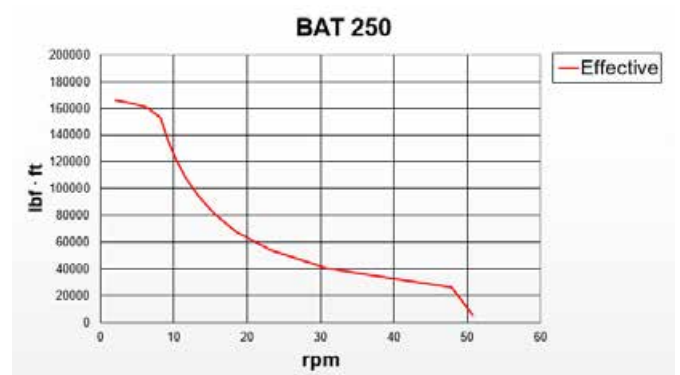
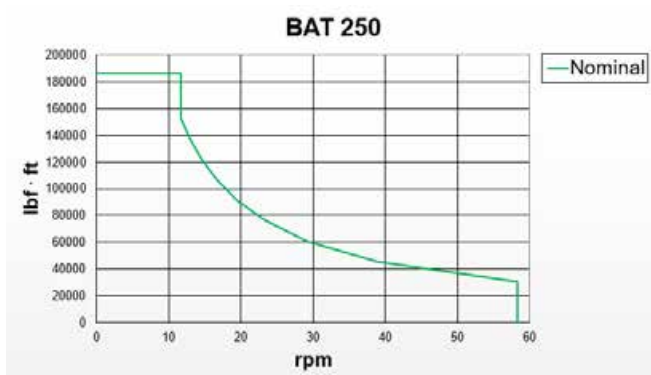
- No mechanical shift gearbox
- Low maintenance requirements

## Automatic gearbox for best operating comfort:

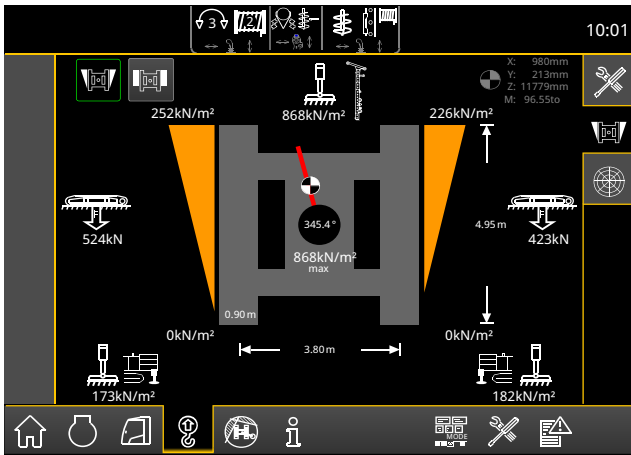
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

## Flexibility through modular design:

- Exchangeable cardan joint for other casing drivers
- Exchangeable drive adapters for use of other Kelly bars
- Quickly exchangeable equipment for other methods of operation

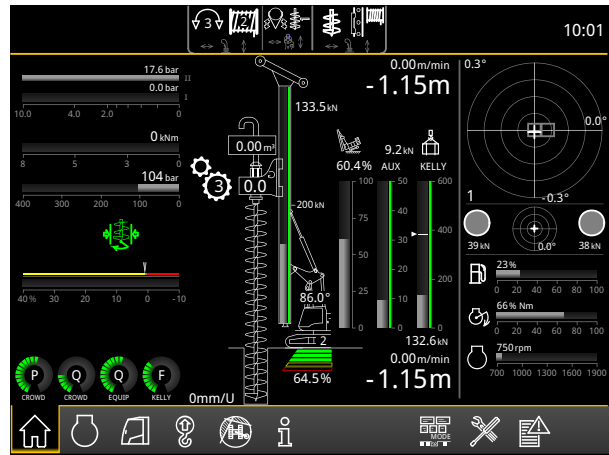


# Ground pressure visualization



## Features:

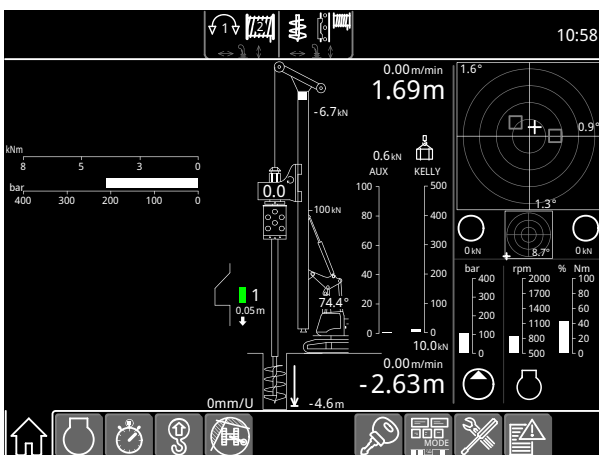
- The actual ground pressure is calculated in real time
- The maximum admissible ground pressure can be individually predefined
- The utilization is continuously calculated and displayed on the monitor in the operator's cabin
- Audible and visual warnings when the predefined values are approached



## Your benefits:

- Increased safety on the jobsite due to consideration of prevailing ground conditions
- Higher operator comfort thanks to clearly displayed information and warning signals
- Prevention of critical or stressful situations before they occur
- User-friendly and intuitive handling in the operator's cabin

# Kelly visualization



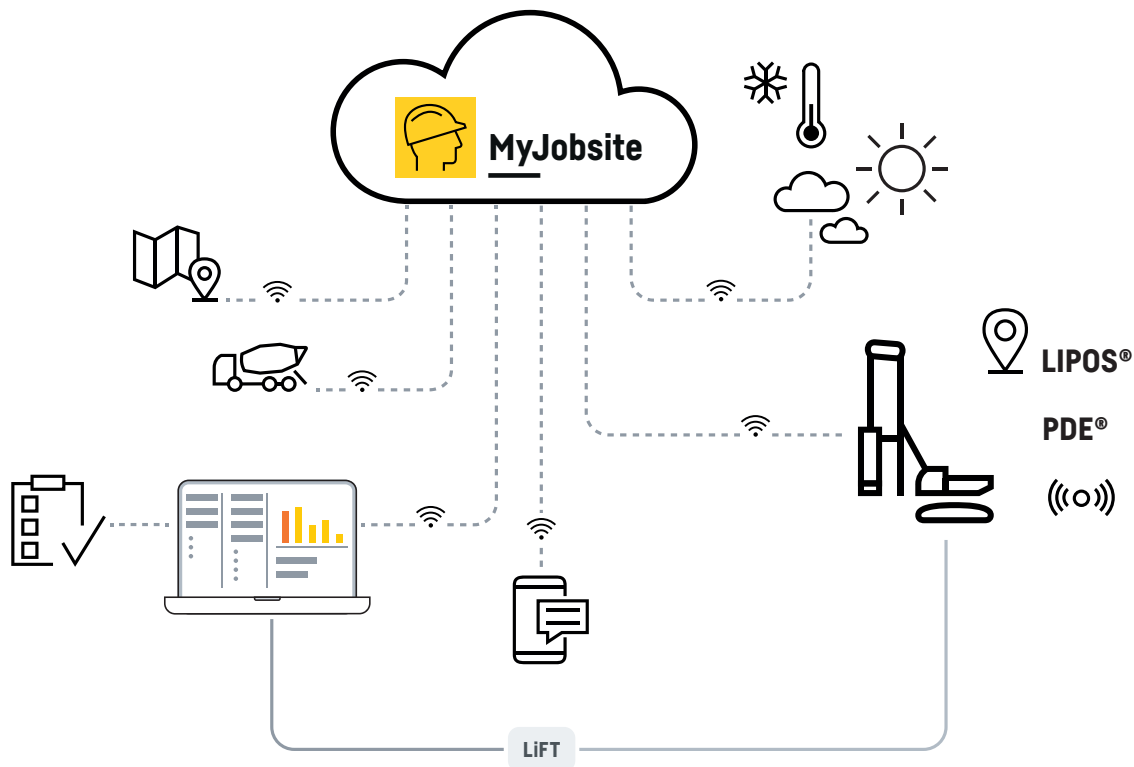
## Your benefits:

- Time saving: the operator no longer needs to search for the interlocking recesses
- Higher availability: the machine needs less repair and maintenance work
- More safety: correct locking prevents damage to the Kelly bar
- Cost reduction: smooth operation results in higher performance and less wear

All measurements displayed on this page are metric.

# Digitalization in deep foundation work

As deep foundation expert, Liebherr has created a combination of the most diverse assistance systems and software solutions in order to record and evaluate complex processes and to be able to provide the corresponding evidence.



## LIPOS - Liebherr positioning system

Using pre-installed components, LIPOS enables the direct integration of machine control systems from Trimble and Leica. These systems are based on modern DGNSS technology (Differential Global Navigation Satellite System) and so achieve the best possible conditions for a precise and efficient positioning of Liebherr machines and their attachment tools.

## PDE

All working processes can be electronically recorded and visualized using the process data recording system PDE. The system is operated and displayed on the PDE touchscreen in the operator's cab. PDE records operating data from the Litronic control system, as well as data from external sensors.

## MyJobsite

Using the MyJobsite software solution all relevant process, machine, construction site and positioning data (LIPOS) can be recorded, displayed, analysed, managed

and evaluated in one central location. The collected data can be accessed via a web browser when an internet connection is active.

With the recorded PDE data, such as the driving progress of the pile per blow, the total number of blows, or the impact frequency per minute, a driving protocol is automatically generated as proof of quality directly after completion of a work process. The parameters of the driving protocol can be defined and assigned in advance. Using the templates saves a lot of time when creating the protocols.

MyJobsite is THE tool for quality control and documentation. The deluge of data, which is accrued each day from a wide variety of sources on the jobsite, can be recorded precisely and processed in an informative manner. Unpopular bureaucratic work is kept to a minimum and the amount of time required for it is significantly reduced. At the same time, the quality of administration work is maximised.



Download datasheet



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